QC ABSTRACT

NAME OF WORK: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at [illegible]amma Layout and Surrounding Ara in Ward No.10

Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials					
Cement	Fineness by dry sieving	One Test		1	1
	Finess by Air permeablity method	One Test		1	1
	Density	One Test		1	1
	Standard Consistency	One Test		1	1
	Initial Setting time	One Test		1	1
	Final Setting time	One Test		1	1
	Soundness (Le Chatelier's Method)	One Test		1	1
	Compressive Strength	One Test		1	1
Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
	Flakiness Index	One Test		1	1
	Elongation Index	One Test		1	1
	Specific Gravity	One Test		1	1
	Bulk Density(Loose)	One Test		1	1
	Bulk Density(Compacted)	One Test		1	1
	Water Absorption	One Test		1	1
Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
	Flakiness Index	One Test		1	1
	Elongation Index	One Test		1	1
	Specific Gravity	One Test		1	1
	Bulk Density(Loose)	One Test		1	1
	Bulk Density(Compacted)	One Test		1	1
	Water Absorption	One Test		1	1
	Aggregate crushing Value	One Test		1	1
	Aggregate Impact Value	One Test		1	1
Fine aggregate	SIEVE ANALYSIS	One Test		1	1
	Water Absorption	One Test		1	1
	Specific Gravity	One Test		1	1
	Material finer than 75 micron	One Test		1	1
Steel	Bend test	One Test		1	1
	Tensile Test	One Test		1	1
	Yield Test	One Test		1	1
	ReBend test	One Test		1	1
Block(400*200*200)	BLOCK DENSITY	One Test		1	1
	WATER ABSORPTION	One Test		1	1
	DIMENSION ANALYSIS	One Test		1	1
	COMPRESSIVE STRENGTH	One Test		1	1
KERB	Core Compressive strength	One Test		1	1
	Corrected Cylinder Compressive strength	One Test		1	1
	Equivalent Cube Compressive strength	One Test		1	1
Precast (100mm)	Core Compressive Strength	One Test		1	1
	Corrected Cylinder Compressive Strength	One Test		1	1
	Equivalent Cube Compressive Strength	One Test		1	1

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Precast (150mm)	Core Compressive Strength	One Test		1	1
	Corrected Cylinder Compressive Strength	One Test		1	1
	Equivalent Cube Compressive Strength				
PCC(M15)	Compressive Strength(7days and 28days)	2 set /6-15 cum	9.73	4	4
RCC(M20)	Compressive Strength(7days and 28days)	3 set /16-30 cum	29.6	6	6
Cement Concrete Pavemet (M30)	Compressive Strength(7days and 28days)	12 set /400-450 cum	411.68	24	24
WMM	Sieve Analysis	One Test		1	1
	Impact Value	One Test		1	1
	Flakiness Index	One Test		1	1
	Elongation Index	One Test		1	1
DBM	SIEVE ANALYSIS	One Test		1	1
	STRIPPING VALUE	One Test		1	1
	Flakiness Index	One Test		1	1
	Elongation Index	One Test		1	1
	IMPACT VALUE	One Test		1	1
	Specific gravity	One Test		1	1
	Water Absorption	One Test		1	1
	Marshal Stability	One Test		1	1
	Marshal flow	One Test		1	1
	Percent air Voids	One Test		1	1
	Percent Voids in mineral Aggregate	One Test		1	1
	Percent Voids filled with Bitumen	One Test		1	1
	Density	One Test		1	1
	Gradation	One Test		1	1
BC	SIEVE ANALYSIS	One Test		1	1
	STRIPPING VALUE	One Test		1	1
	Flakiness Index	One Test		1	1
	Elongation Index	One Test		1	1
	IMPACT VALUE	One Test		1	1
	Specific gravity	One Test		1	1
	Water Absorption	One Test		1	1
	Marshal Stability	One Test		1	1
	Marshal flow	One Test		1	1
	Percent air Voids	One Test		1	1
	Percent Voids in mineral	One Test		1	1
	Percent Voids filled with Bitumen	One Test		1	1
	Density	One Test		1	1
	Gradation	One Test		1	1
BITUMEN	Ductility	One Test		1	1
	Softening Point	One Test		1	1
	Penetration	One Test		1	1
	Flash Point	One Test		1	1
	Fire Point	One Test		1	1
TACK COAT	Rate of spread	One Test		1	1

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	CP-2020-07-09-13 **Date: 04-01-20**
Project Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
Customer's Reference	:	BBMP/EE/BTP/WO/125/2019-20
Date of Receipt	:	01-01-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	02-01-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

SLNo.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.95	–
2	Finess by Air permeablity method (m^2/kg,Min)	285.3	225m^2/kg, Min
3	Density (gm/cc)	3.13	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	150 minutes	Not less than 30 minutes
6	Final Setting time	245 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-07-09-13** **Date: 30-01-20**
Project Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
Customer's Reference	:	BBMP/EE/BTP/WO/125/2019-20
Date of Receipt	:	01-01-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	02-01-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-07-09-13** **Date: 04-01-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 01-01-20

Sample Type : 40mm down size coarse aggregate

Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
IS 2386 Part 4: Mechanical Properties

Date of test : 01-01-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : **15000 grams**

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	254	254	1.7	98.3	90-100
3	20 mm	5422	5676	37.8	62.2	30-70
4	10 mm	4132	9808	65.4	34.6	10-35
5	4.75 mm	4854	14662	97.7	2.3	0-5
6	Pan	338	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-07-09-13** **Date: 04-01-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.8	
3	Specific Gravity	2.68	_
4	Bulk Density(Loose) (Kg/l)	1.48	_
5	Bulk Density(Compacted) (Kg/l)	1.52	_
6	Water Absorption(%)	0.22	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-07-09-13** **Date: 03-01-20**
Project Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
Customer Reference	:	BBMP/EE/BTP/WO/125/2019-20
Date of Receipt	:	01-01-20
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	01-01-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	235	235	4.7	95.3	90-100
3	10 mm	2470	2705	54.1	45.9	25-55
4	4.75 mm	2133	4838	96.8	3.2	0-10
5	Pan	162	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2020-07-09-13 Date: 03-01-20

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.5	
3	Specific Gravity	2.67	_
4	Bulk Density(Loose) (Kg/l)	1.54	_
5	Bulk Density(Compacted) (Kg/l)	1.58	_
6	Water Absorption(%)	0.22	_
7	Aggregate crushing Value(%)	24.5	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.8	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT OF FINE AGGREGATE

: CP-2020-07-09-13

Date: 03-01-20

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 01-01-20

: Fine Aggregate

: IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

: 01-01-20

: 1000 grams

Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
					Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
10 mm	0	0	0.0	100.0	100	100	100	100
4.75 mm	27	27	2.7	97.3	90-100	90-100	90-100	95-100
2.36 mm	55	82	8.2	91.8	60-95	75-100	85-100	95-100
1.18 mm	239	321	32.1	67.9	30-70	55-90	75-100	90-100
600 micron	205	526	52.6	47.4	15-34	35-59	60-79	80-100
300 micron	203	729	72.9	27.1	5-20	8-30	12-40	15-50
150 micron	191	920	92.0	8.0	0-10	0-10	0-10	0-15
Pan	80	1000	100.0	0.0	---	---	---	---

The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

: CP-2020-07-09-13

Date: 03-01-20

PHYSICAL PROPERTIES

Tests	Result	Requirements as per IS 383:2016
Water Absorption(%)	1.5	–
Specific Gravity	2.59	–
Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST RESULTS OF STEEL

Lab ID : **CP-2020-07-09-13** **Date: 07-01-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 06-01-20

Sample Type : Sunvik

Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

Date of test: : 06-01-20

Sl No.	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	16	1.581	572	674	19.0%	Satisfactory	Satisfactory

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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	CP-2020-07-09-13 **Date: 27-01-20**
Project Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
Customer's Reference	:	BBMP/EE/BTP/WO/125/2019-20
Date of Receipt	:	23-01-20
Sample Type/Size	:	Solid concrete blocks size (400X200X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex - C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of Test	:	23-01-20

BLOCK DENSITY:

Sl.No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1) :2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	399	203	202	16361	31.770	1941.8	1950.5	Not less than 1800Kg/m^3
2	398	202	199	15999	32.358	2022.5		
3	405	202	201	16444	31.031	1887.1		

WATER ABSORPTION:

Sl.No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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: CP-2020-07-09-13

Date: 27-01-20

DIMENSION ANALYSIS

Sl. No.	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	404	199	202	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	401	201	199	
3	403	201	203	
4	400	199	202	
5	401	202	199	
6	399	201	199	
7	401	200	199	
8	401	201	199	
9	399	203	203	
10	400	202	199	
11	403	200	200	
12	402	201	203	
13	403	202	202	
14	401	201	199	
15	403	201	203	
16	401	202	199	
17	400	202	203	
18	402	202	199	
19	400	201	201	
20	400	202	202	
Average	**401**	**201**	**201**	

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: CP-2020-07-09-13 Date: 27-01-20

E STRENGTH:

Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
Length	Breadth				
mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
400	199	79791	383.8	4.8	4.7
401	201	80656	364.8	4.5	
403	201	80889	382.6	4.7	
400	199	79745	388.3	4.9	
401	202	81054	377.3	4.7	
399	201	80433	370.2	4.6	
401	200	80069	386.1	4.8	
401	201	80719	367.0	4.5	

Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

	Compressive strength	
Grade	Minimum average	Minimum Individual units.
C(5.0)	5.00 N/mm^2	4.00 N/mm^2
C(4.0)	4.00 N/mm^2	3.20 N/mm^2

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TEST REPORT OF PRECAST COVER SLAB

: **CP-2020-07-09-13** **Date: 17-01-20**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 13-01-20

: Precast Cover Slab (100mm)

: IS: 516 - 1959 Methods of Tests for Strength of Concrete

: 13/01/2020

	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
	(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
[illegible]-1	75.51	100.48	1.116	4477	80.9	18.1	16.8	21.0
[illegible]-2	75.49	100.52	1.122	4475	82.3	18.4	17.1	21.4
[illegible]-3	75.50	100.51	1.118	4476	81.5	18.2	16.9	21.2

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TEST REPORT OF PRECAST COVER SLAB

: CP-2020-07-09-13 **Date: 17-01-20**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 13-01-20

: Precast Cover Slab (150mm)

: IS: 516 - 1959 Methods of Tests for Strength of Concrete

: 13/01/2020

	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
	(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
[illegible]	113.27	150.48	1.816	10074	120.9	12.0	11.2	14.0
[illegible]	113.26	150.52	1.822	10072	122.3	12.1	11.3	14.1
[illegible]	113.26	150.51	1.818	10073	121.5	12.1	11.2	14.0

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TEST REPORT OF CEMENT CONCRETE KERB STONE

: **CP-2020-07-09-13** **Date: 22-01-20**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 18-01-20

: CC Kerb Stone/ 450*165*400mm

: IS: 516 - 1959 Methods of Tests for Strength of Concrete

: 18/01/2020

	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
	(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm2)	(N/mm2)	(N/mm2)
A	100.01	165.51	2.864	7854	142.1	18.1	18.1	22.6
B	100.03	165.49	2.793	7857	145.2	18.5	18.5	23.1
C	100.01	165.50	2.815	7854	145.1	18.5	18.5	23.1

Assistant Executive Engineer
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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 16/01/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 11-01-20

: PCC

: 150X150X150 mm

: M15 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 16/01/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M15	09/01/2020	16/01/2020	150.16 X 150.29 X 151.20	22568	**8.954**	285.4	12.6	12.7
M15	09/01/2020	16/01/2020	149.50 X 150.61 X 151.83	22516	**8.645**	288.2	12.8	
M15	09/01/2020	16/01/2020	150.97 X 150.11 X 151.07	22662	**8.804**	288.1	12.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

: CP-2020-07-09-13

Date: 06/02/2020

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 11-01-20

: PCC

: 150X150X150 mm

: M15 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 06/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M15	09/01/2020	06/02/2020	149.20 X 150.00 X 150.57	22381	**8.691**	384.4	17.2	17.3
M15	09/01/2020	06/02/2020	150.74 X 151.78 X 150.27	22879	**8.279**	396.6	17.3	
M15	09/01/2020	06/02/2020	150.50 X 151.07 X 149.90	22737	**8.013**	393.9	17.3	

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: **CP-2020-07-09-13** **Date: 16/01/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 11-01-20

: PCC

: 150X150X150 mm

: M15 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 16/01/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M15	09/01/2020	16/01/2020	151.55 X 151.57 X 150.02	22970	**8.954**	290.0	12.6	12.4
M15	09/01/2020	16/01/2020	150.27 X 149.63 X 149.53	22485	**8.645**	276.9	12.3	
M15	09/01/2020	16/01/2020	149.61 X 149.03 X 149.80	22296	**8.804**	276.2	12.4	

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: 11-01-20

: PCC

: 150X150X150 mm

: M15 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 06/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M15	09/01/2020	06/02/2020	149.99 X 150.39 X 149.25	22557	**8.691**	393.0	17.4	17.5
M15	09/01/2020	06/02/2020	150.26 X 150.88 X 149.21	22670	**8.279**	397.9	17.5	
M15	09/01/2020	06/02/2020	150.63 X 150.28 X 151.62	22637	**8.013**	396.3	17.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 23/01/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 18-01-20

: Drain Bottom Slab Concrete

: 150X150X150 mm

: M20 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 23/01/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M20	16/01/2020	23/01/2020	151.73 X 149.42 X 149.10	22672	**8.978**	424.4	18.7	18.7
M20	16/01/2020	23/01/2020	149.89 X 149.76 X 151.81	22446	**8.911**	421.5	18.8	
M20	16/01/2020	23/01/2020	149.75 X 149.57 X 150.68	22399	**8.912**	418.0	18.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 13/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 18-01-20

: Drain Bottom Slab Concrete

: 150X150X150 mm

: M20 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 13/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M20	16/01/2020	13/02/2020	149.23 X 149.67 X 149.52	22335	**8.592**	524.1	23.5	23.1
M20	16/01/2020	13/02/2020	149.70 X 149.48 X 150.24	22378	**8.664**	494.7	22.1	
M20	16/01/2020	13/02/2020	151.29 X 151.85 X 150.95	22973	**8.608**	547.9	23.8	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 27/01/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 22-01-20

: Drain Side Wall Concrete

: 150X150X150 mm

: M20 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 27/01/2020

	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
	M20	20/01/2020	27/01/2020	151.73 X 151.21 X 151.61	22944	**8.978**	435.1	19.0	18.6
	M20	20/01/2020	27/01/2020	151.23 X 149.41 X 151.13	22595	**8.911**	420.1	18.6	
	M20	20/01/2020	27/01/2020	150.24 X 149.26 X 150.79	22426	**8.912**	406.8	18.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 17/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 22-01-20

: Drain Side Wall Concrete

: 150X150X150 mm

: M20 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 17/02/2020

	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
	M20	20/01/2020	17/02/2020	151.84 X 150.13 X 150.48	22795	**8.592**	537.8	23.6	23.2
	M20	20/01/2020	17/02/2020	151.62 X 150.00 X 151.37	22742	**8.664**	512.9	22.6	
	M20	20/01/2020	17/02/2020	150.45 X 149.08 X 150.08	22428	**8.608**	525.8	23.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 17/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

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: BBMP/EE/BTP/WO/125/2019-20

: 22-01-20

: Drain Side Wall Concrete

: 150X150X150 mm

: M20 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 17/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M20	20/01/2020	17/02/2020	151.84 X 150.13 X 150.48	22795	**8.592**	537.8	23.6	23.2
M20	20/01/2020	17/02/2020	151.62 X 150.00 X 151.37	22742	**8.664**	512.9	22.6	
M20	20/01/2020	17/02/2020	150.45 X 149.08 X 150.08	22428	**8.608**	525.8	23.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

: CP-2020-07-09-13 **Date: 27/01/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 22-01-20

: Drain Side Wall Concrete

: 150X150X150 mm

: M20 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 27/01/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M20	20/01/2020	27/01/2020	150.85 X 149.88 X 150.12	22610	**8.978**	423.2	18.7	18.7
M20	20/01/2020	27/01/2020	150.28 X 151.75 X 151.97	22805	**8.911**	417.4	18.3	
M20	20/01/2020	27/01/2020	150.48 X 150.09 X 150.67	22586	**8.912**	428.1	19.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 17/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 22-01-20

: Drain Side Wall Concrete

: 150X150X150 mm

: M20 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 17/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M20	20/01/2020	17/02/2020	151.47 X 151.96 X 149.16	23018	**8.592**	530.6	23.1	22.7
M20	20/01/2020	17/02/2020	149.81 X 149.50 X 150.59	22396	**8.664**	493.5	22.0	
M20	20/01/2020	17/02/2020	151.25 X 151.49 X 149.30	22912	**8.608**	528.4	23.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 04/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 04/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	04/02/2020	150.07 X 150.31 X 151.32	22557	**8.881**	586.2	26.0	26.0
M30	28/01/2020	04/02/2020	151.53 X 149.03 X 151.64	22583	**8.642**	607.7	26.9	
M30	28/01/2020	04/02/2020	151.06 X 149.34 X 149.03	22560	**8.501**	563.8	25.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 25/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 25/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	25/02/2020	149.44 X 150.10 X 149.69	22432	**8.486**	744.1	33.2	33.1
M30	28/01/2020	25/02/2020	150.36 X 151.66 X 150.00	22804	**8.699**	747.9	32.8	
M30	28/01/2020	25/02/2020	151.83 X 151.14 X 150.03	22947	**8.120**	763.0	33.3	

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: **CP-2020-07-09-13** **Date: 04/02/2020**

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: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 04/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	04/02/2020	151.72 X 150.88 X 150.89	22891	**8.881**	586.1	25.6	25.5
M30	28/01/2020	04/02/2020	149.40 X 150.05 X 149.23	22417	**8.642**	597.6	26.7	
M30	28/01/2020	04/02/2020	150.20 X 149.54 X 149.89	22461	**8.501**	547.6	24.4	

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: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 25/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	25/02/2020	149.01 X 150.63 X 150.31	22445	**8.486**	759.2	33.8	33.4
M30	28/01/2020	25/02/2020	149.18 X 149.35 X 149.07	22281	**8.699**	732.2	32.9	
M30	28/01/2020	25/02/2020	149.27 X 151.29 X 151.91	22583	**8.120**	756.9	33.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 04/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 04/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	04/02/2020	150.35 X 149.81 X 151.22	22525	**8.881**	582.5	25.9	25.9
M30	28/01/2020	04/02/2020	150.61 X 151.42 X 150.84	22806	**8.642**	613.1	26.9	
M30	28/01/2020	04/02/2020	151.12 X 151.13 X 149.37	22839	**8.501**	566.7	24.8	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 04/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 04/02/2020

Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
Cement Concrete Pavement	M30	28/01/2020	04/02/2020	149.31 X 151.19 X 151.47	22573	**8.881**	581.6	25.8	25.5
Cement Concrete Pavement	M30	28/01/2020	04/02/2020	151.72 X 149.17 X 151.74	22632	**8.642**	602.4	26.6	
Cement Concrete Pavement	M30	28/01/2020	04/02/2020	149.23 X 151.17 X 150.63	22558	**8.501**	541.6	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 25/02/2020

: **CP-2020-07-09-13**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 30-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 25/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	28/01/2020	25/02/2020	151.46 X 150.61 X 150.01	22812	**8.486**	772.1	33.8	33.3
M30	28/01/2020	25/02/2020	151.25 X 149.05 X 151.59	22544	**8.699**	727.0	32.2	
M30	28/01/2020	25/02/2020	149.38 X 149.94 X 149.44	22398	**8.120**	755.0	33.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 05/02/2020

: **CP-2020-07-09-13**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 31-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 05/02/2020

Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
Cement Concrete Pavement	M30	29/01/2020	05/02/2020	149.99 X 151.68 X 151.33	22750	**8.881**	575.1	25.3	25.4
Cement Concrete Pavement	M30	29/01/2020	05/02/2020	151.80 X 151.43 X 150.56	22987	**8.642**	613.8	26.7	
Cement Concrete Pavement	M30	29/01/2020	05/02/2020	149.79 X 151.54 X 151.04	22699	**8.501**	552.7	24.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 26/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 31-01-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 26/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	29/01/2020	26/02/2020	151.61 X 151.24 X 151.20	22929	**8.486**	766.8	33.4	33.2
M30	29/01/2020	26/02/2020	150.93 X 151.06 X 150.85	22800	**8.699**	749.3	32.9	
M30	29/01/2020	26/02/2020	149.63 X 150.69 X 149.30	22548	**8.120**	754.1	33.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 27/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 01-02-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 27/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	30/01/2020	27/02/2020	150.66 X 150.99 X 149.12	22748	**8.486**	767.3	33.7	33.1
M30	30/01/2020	27/02/2020	151.99 X 151.53 X 149.20	23030	**8.699**	742.3	32.2	
M30	30/01/2020	27/02/2020	150.57 X 149.20 X 150.60	22464	**8.120**	750.1	33.4	

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: **CP-2020-07-09-13** **Date: 06/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 01-02-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 06/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	30/01/2020	06/02/2020	151.52 X 150.96 X 150.30	22873	**8.881**	585.5	25.6	25.7
M30	30/01/2020	06/02/2020	151.98 X 149.11 X 149.56	22661	**8.642**	602.7	26.6	
M30	30/01/2020	06/02/2020	149.09 X 149.17 X 151.40	22240	**8.501**	552.9	24.9	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 27/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

: BBMP/EE/BTP/WO/125/2019-20

: 01-02-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 28 Days Compressive Strength

: IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 27/02/2020

Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
M30	30/01/2020	27/02/2020	150.91 X 150.78 X 151.63	22755	**8.486**	767.4	33.7	33.3
M30	30/01/2020	27/02/2020	150.57 X 149.60 X 150.89	22525	**8.699**	733.0	32.5	
M30	30/01/2020	27/02/2020	151.34 X 149.46 X 149.05	22618	**8.120**	760.3	33.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

: **CP-2020-07-09-13** **Date: 06/02/2020**

: Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Reference : BBMP/EE/BTP/WO/125/2019-20

: 01-02-20

: Cement Concrete Pavement

: 150X150X150 mm

: M30 / 7 Days Compressive Strength

IS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

: 06/02/2020

Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
Cement Concrete Pavement	M30	30/01/2020	06/02/2020	151.03 X 150.13 X 151.26	22674	**8.881**	572.3	25.2	25.5
Cement Concrete Pavement	M30	30/01/2020	06/02/2020	149.55 X 150.34 X 149.21	22483	**8.642**	605.3	26.9	
Cement Concrete Pavement	M30	30/01/2020	06/02/2020	151.89 X 151.34 X 151.02	22988	**8.501**	561.4	24.4	

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TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

: **CP-RW-2020-07-09-13** **Date: 02-02-20**

ame : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Reference : BBMP/EE/BTP/WO/125/2019-20

eceipt : 31-01-20

lix : DBM-Plant (Dense Bituminous Macadam)

st : 31-01-20

Sample : 5000 Grams

e Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

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TESTS RESULTS ON STABILITY OF MIX

ID	:	**CP-RW-2020-07-09-13** **Date: 03-02-20**
ect Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
ncy	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
tomer Reference	:	BBMP/EE/BTP/WO/125/2019-20
e of Receipt	:	31-01-20
e of Mix	:	DBM (Dense Bituminous Mecadam)
e of test	:	31-01-20

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl no	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
	Marshal flow at 60°C, mm	3.54	3.87	2-4
	Percent air Voids	4.56	4.17	3-5
	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
	Density, g/cc	2.42	2.40	–

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	CP-RW-2020-07-09-13 Date: 03-02-20
Project Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
Customer Reference	:	BBMP/EE/BTP/WO/125/2019-20
Date of Receipt	:	31-01-20
Type of Mix	:	DBM(Dense Bitumnous Macadam)
Date of test	:	31-01-20
Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011)

b ID	:	**CP-RW-2020-07-09-13** **Date: 10-02-20**
ject Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
ncy	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
tomer Reference	:	BBMP/EE/BTP/WO/125/2019-20
te of Receipt	:	09-02-20
pe of Mix	:	DBM (Dense Bituminous Macadam)
te of test	:	09-02-20

no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	474	476
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.2	4.8
4	Average percentage	%	5.0	

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Lab ID : CP-RW-2020-07-09-13 Date: 10-02-20

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 474

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14.4	14.4	3.04	97.0	90-100
19	24	38.4	8.10	91.9	71-95
13.2	120	158.4	33.42	66.6	56-80
4.75	96	254.4	53.67	46.3	38-54
2.36	80	334.4	70.55	29.5	28-42
0.3	62.4	396.8	83.71	16.3	7-21
0.075	52.8	449.6	94.85	5.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 476

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14.8	14.8	3.11	96.9	90-100
19	24	38.8	8.15	91.8	71-95
13.2	*120*	*158.8*	*33.36*	*66.6*	*56-80*
4.75	*96*	*254.8*	*53.53*	*46.5*	*38-54*
2.36	*78*	*332.8*	*69.92*	*30.1*	*28-42*
0.3	62.4	395.2	83.03	17.0	7-21
0.075	52.8	448	94.12	5.9	*2-8*

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

ID	:	CP-RW-2020-07-09-13 **Date: 06-02-20**
ect Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
ry	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
mer Reference	:	BBMP/EE/BTP/WO/125/2019-20
of Receipt	:	04-02-20
of Mix	:	BC-Plant (Bituminous Concrete)
of test	:	04-02-20
Dry Weight	:	5000 Grams

Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

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ST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

ID	:	**CP-RW-2020-07-09-13** **Date: 07-02-20**
ect Name	:	Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10
ncy	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.
omer Reference	:	BBMP/EE/BTP/WO/125/2019-20
of Receipt	:	04-02-20
e of Mix	:	BC(Bitumenous Concrete)
of test	:	04-02-20

e of Binder	:	60/70
f Binder Used	:	5.0%
ght of Aggregate	:	200.0 gm
ght of Binder	:	10.0 gm
perature of water bath	:	40°C

f test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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YSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

: **CP-RW-2020-07-09-13** **Date: 07-02-20**

me : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

: Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Reference : BBMP/EE/BTP/WO/125/2019-20

eipt : 04-02-20

x : BC (Bituminous Concrete)

: 04-02-20

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

erty	Test	Result	Specification	Method of Test
Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
ngth	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
sorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2020-07-09-13** **Date: 07-02-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 04-02-20

Type of Mix : BC (Bituminous Concrete)

Date of test : 04-02-20

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2020-07-09-13** **Date: 11-02-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 10-02-20

Type of Mix : BC (Bituminous Concrete)

Date of test : 10-02-20

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	470
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.00
4	Average percentage	%	6.1	

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Lab ID : **CP-RW-2020-07-09-13** **Date: 11-02-20**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	48	445	94.9	5.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 470

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.0	86.0	70-88
4.75	112	178	37.9	62.1	53-71
2.36	88	266	56.6	43.4	42-58
1.18	29	295	62.8	37.2	34-48
0.6	11	306	65.1	34.9	26-38
0.3	46	352	74.9	25.1	18-28
0.15	45	397	84.5	15.5	12-20
0.075	50	447	95.1	4.9	4-10

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : **CP-RW-2020-07-09-13** **Date: 30-01-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 28-01-20

Sample Type : Bitumen

Reference to BIS codes : IS: 1201-1220(1978) (Reaffirmed-2004)

Date of test : 28-01-20

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	60 to 70
2	Softening Point, °C	**51.2**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**245**	Min. 220°C
	Fire point, °C	**272**	

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2020-07-09-13** **Date: 11-02-20**

Project Name : Construction of RCC Drain Cement Concrete Road and Missing Covering Slabs at Elumandamma Layout and Surrounding Ara in Ward No.10

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560010.

Customer Reference : BBMP/EE/BTP/WO/125/2019-20

Date of Receipt : 10-02-20

Type of Mix : Tack coat

Date of test : 10-02-20

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

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